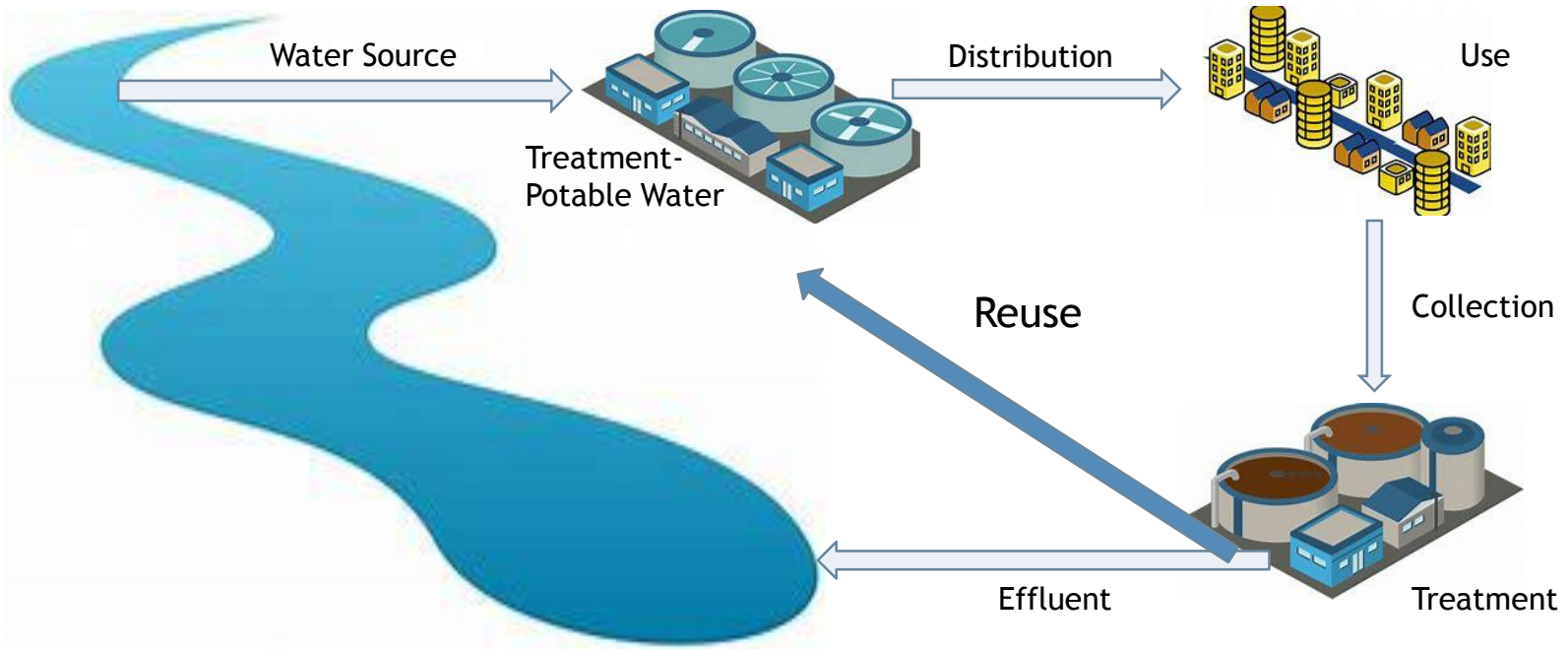
Why Aren't We Reusing More Water?

Basic Principle of Reuse

- Diverted and treated for culinary use
- Distributed and used by customers
- Wastewater is collected and treated
- Returned to natural system OR
- Returned for reuse (generally outdoor landscape or ag irrigation)

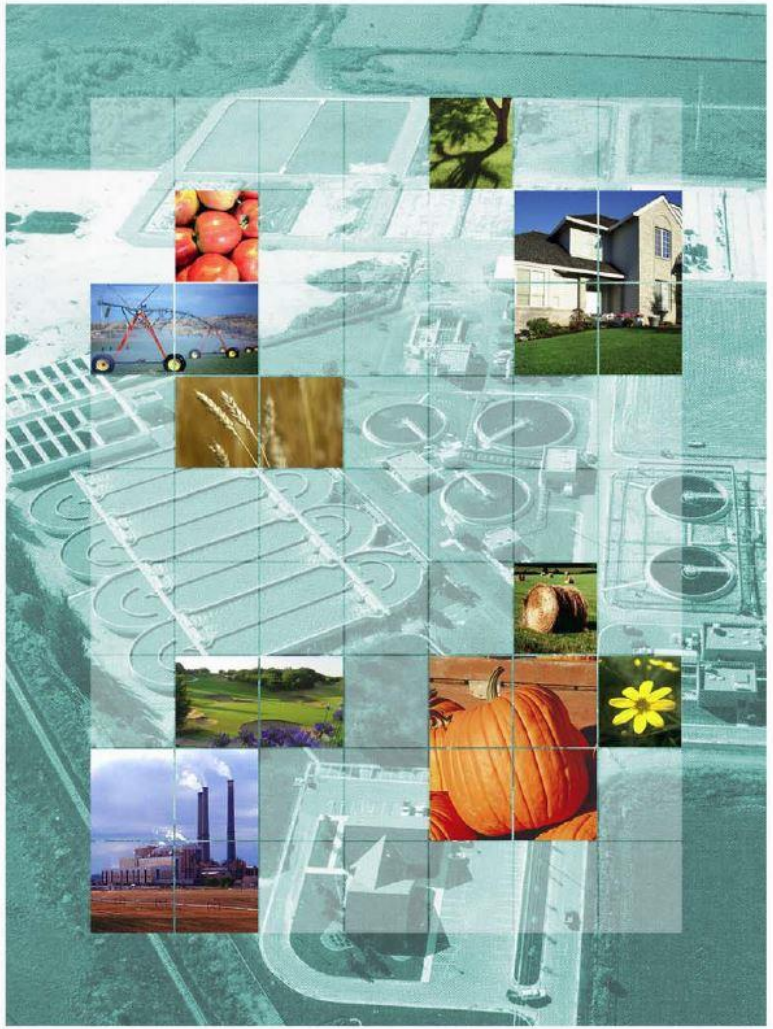


How much culinary water do we actually use?

- Average Indoor Usage per Person in Utah: 60 gpcd
- US Census Bureau, est. Population in 2017: 3,101,833 people
- Average Daily Indoor Water Use: 186,109,980 gal or 571 Acre-Feet
- Average Annual Indoor Water Use: 208,470 Acre-Feet
- Rule of Thumb for Domestic Use of Water
  - 20% is consumed
  - 80% available for Reuse: 166,776 Acre-Feet
- Willard Bay: 215,000 Acre-Feet
- Sand Hollow Reservoir: 50,000 Acre-Feet

USDA Natural Resource Conservation Service

Water Reuse in Utah



April 2005

STATE OF UTAH
NATURAL RESOURCES
Division of Water Resources

UTAH STATE WATER PLAN

https://water.utah.gov/OtherReports/WaterReuse/WaterReuseAA.pdf

2005 Water Reuse in Utah Report

Preface

- This document … is intended to focus increased attention on the opportunities for water reuse in Utah. In many states throughout the nation, water reuse has proved to be an effective and safe means to help satisfy growing water demands. Many water suppliers in Utah recognize these successes and have taken steps to investigate and implement feasible projects.

2005 Water Reuse in Utah Report

Executive Summary

- Utah's water is one of its most valuable resources. … However, once this water has met its initial purposes, it is discarded down the drain, where most users hope to never see or hear of it again. Not a very glamorous fate for such a precious commodity. Yet in recent years, discarded wastewater has taken on renewed value. No longer is it merely seen as a menace to be disposed of, but as a valuable resource that will help satisfy future water demands in Utah's semi-arid climate.

2005 Water Reuse in Utah Report

Executive Summary

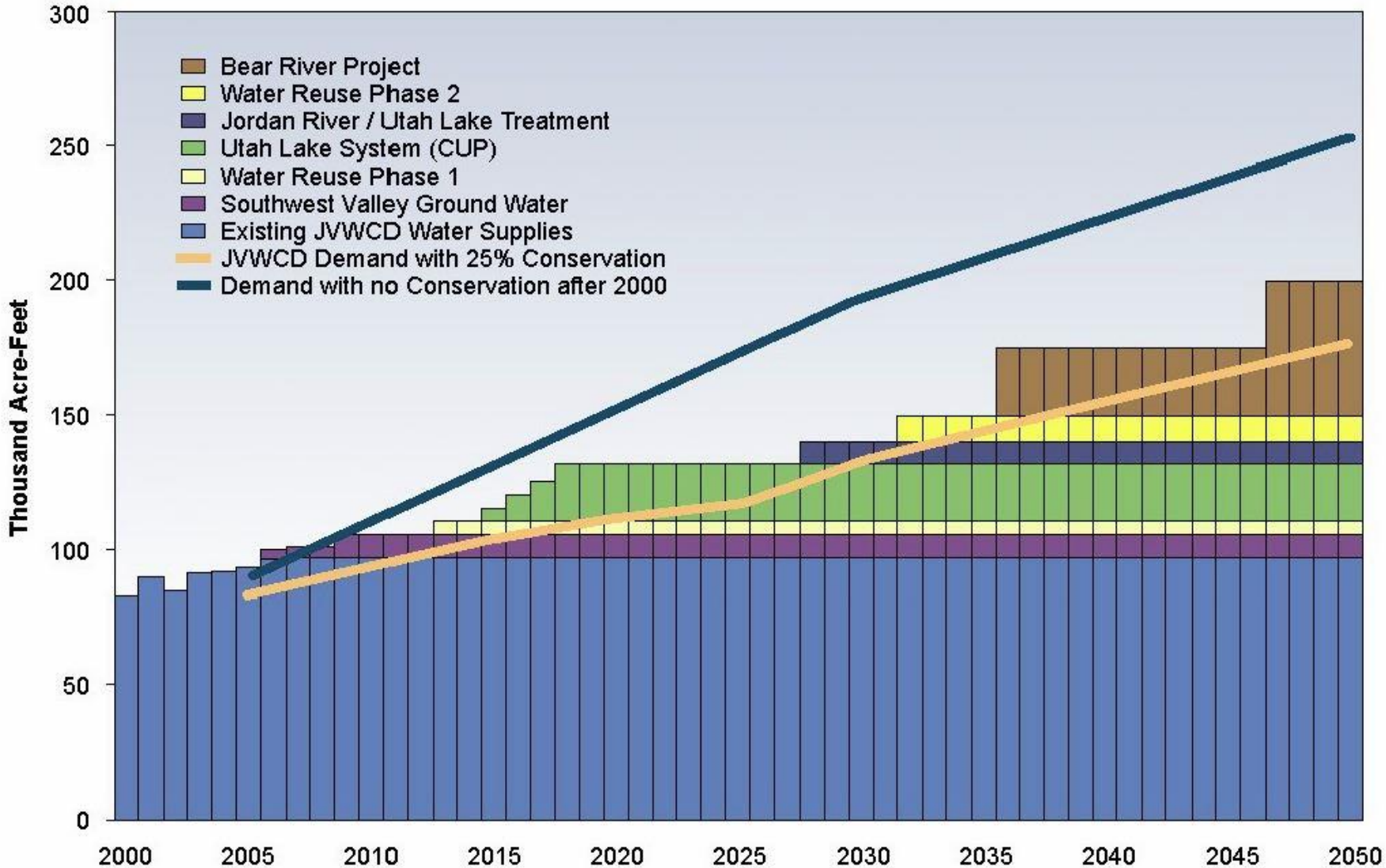
- Even if a project makes sense in every other aspect, if it is not economically feasible it will not likely be implemented. The feasibility of a project can be affected by the general economics and the various methods of allocating the costs associated with a reuse project. The economics of a project can be improved through various means of allocating the costs, but the main idea that must be remembered is that any approach used in setting the rate for reclaimed water must take into account the interests of the end user.
- Despite the issues that may arise, it is evident that water reuse has the potential to play an important role in satisfying future water demands.

2005 Water Reuse in Utah Report

Conclusion

- Most of the easily obtainable sources of water have already been developed, and in some areas, other than potential water reuse projects, only large trans-basin diversions remain to meet future increases in demand. The population of the state is increasing, and as a result, water demand continues to rise. The potential for water reuse to meet some of this demand is promising and implementation of reuse is already occurring. Eventually, water reuse will become an essential element of many communities' water supplies. Consequently, the question with respect to water reuse is not if it will become commonplace, but when and how much.

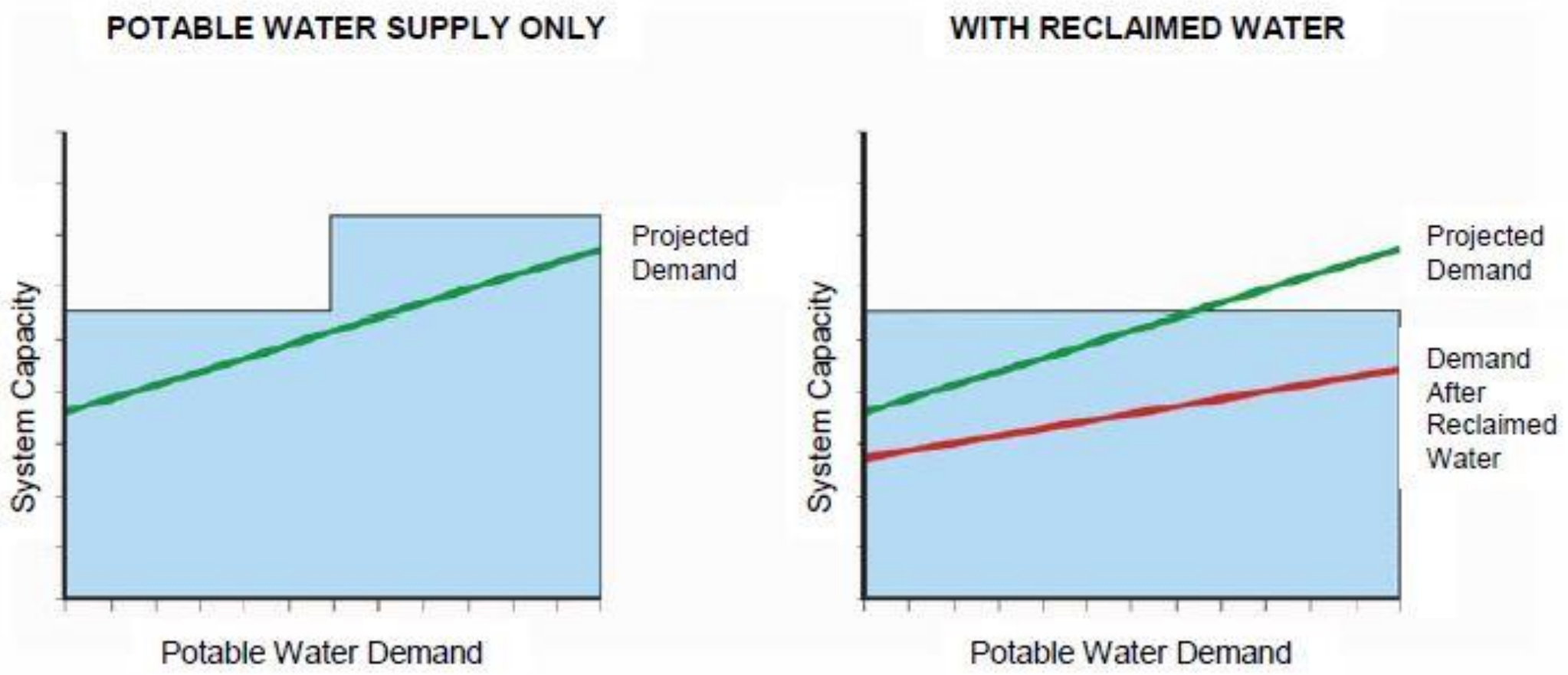
FIGURE 6
Jordan Valley Water Conservancy District Water Supply Plan (Drought Year Scenario)



Source: Jordan Valley Water Conservancy District, February 2005.

FIGURE 8

Expansion of Capacity through Reclaimed Water



Source: Grantham, Robert S., "Alternative Funding Sources for Recycled Water Programs" (WateReuse Symposium, September, 2004), 4.

Reuse Law in Utah

Reuse was official authorized by the Legislature in 1995

12 reuse projects were filed in 11 years under that version of the law.

The 1995 Reuse Act was repealed in 2006 and replaced with a new Reuse Act

Only 7 reuse projects have been filed in the 12 years since 2006.

Why? Let's take a look …

Reuse in Utah

Reuse Notifications/Applications filed with the Division of Water Rights to Date

		Year					Acre-Feet			
App #	Entity	Filed	Decision	Protested?	Status	# of WRs	Requested	Approved	Haircut	Uses
NS006	Tooele City	1995	2006	No	Approved	13	7,999	7,512	6%	Golf course; Deseret Peak Complex
NS012	Eagle Mountain Town	1998	2001	No	Approved	4	959	Sufficient for uses		Irrigation
NS005	So. SLC / Central Valley WRF	1999	1999	Yes	Approved	55	29.65 cfs	Sufficient for uses		Golf course; decorative ponds
NS001	Hildale City	2001	2001	No	Approved	3	460	402	13%	Landscape irrigation
NS002	Orem City	2002	2003	Yes	Approved	12	10,000	9,634	4%	Cooling water; golf course; parks
NS003	Payson City	2002	2003	Hearing	Approved	42	6,665	4,532	32%	Cooling water; pressurized irrigation
NS004	St. George City	2003	2003	No	Approved	17	11,732	6,496	45%	Municipal; landscape irrigation
NS007	South Davis Sewer District	2003	2004	Yes	Approved	14	463	463	0%	Landscape irrigation at Foxboro
NS008	Saratoga Springs City	2004	2007	No	Approved	13	1,135	172	85%	Municipal; golf course, ag irrigation
NS009	Central Weber Sewer District	2004	2005	Hearing	Approved	5	5,554	4,443	20%	Landscape irrigation
NS010	Lehi City	2005	2008	No	Approved	1	1,949	1,949	0%	Municipal
NS011	Fairview City	2006		Hearing	Unapproved	3	2,531			Municipal
NS013	Richmond City	2008	2009	Hearing	Approved	3	797	797	0%	Municipal; landscape irrigation
NS014	Mona City	2008	2013	No	Approved	11	389	389	0%	Municipal
NS015	Santaquin City	2009	2009	No	Approved	5	6,100	5,303	13%	Municipal
NS016	Willard City	2010	2015	No	Approved	4	4,748	4,748	0%	Municipal
NS017	Perry City	2010	2017	No	Approved	7	2,420	1,654	32%	Municipal
NS018	Hyde Park City	2016		Hearing PP	Unapproved	4	3,928			Municipal
NS019	Roosevelt City	2017	2017	No	Approved	1	300	300	0%	Oil field operations

Reuse in Utah

The 1995 Act allowed a city or POTW owner/operator to reuse sewage effluent without other approvals as long as the reuse was consistent with, and did not enlarge, the underlying water rights.

A change application needed to be approved by the State Engineer IF the reuse was:
(1) outside the underlying water rights' approved place of use;
(2) for purposes other than those authorized in the underlying rights; or
(3) inconsistent with the underlying rights.

The city or POTW owner/operator needed to NOTIFY the State Engineer of the intended reuse of sewage effluent.

Reuse in Utah

The 2006 Act allows a public agency owning or operating a POTW that also owns the underlying water rights to reuse its sewage effluent if:
(1) the rights are "municipal" use rights;
(2) the use is consistent with the underlying water rights;
(3) an application with the Utah Water Quality Board is approved; and
(4) an application with the State Engineer is APPROVED.

A water rights change application also needs to be approved by the State Engineer if the reuse is inconsistent in any way with the underlying water rights.

Reuse in Utah

The 2006 Act also allows any public agency to reuse sewage effluent pursuant to a reuse contract if:

(1) the public agency has a Reuse Authorization Contract;
(2) the rights are "municipal" use rights;
(3) the use is consistent with the underlying water rights;
(4) an application with the Utah Water Quality Board is approved; and
(5) an application with the State Engineer is APPROVED.

A change application also needs to be approved by the State Engineer if the reuse is inconsistent in any way with the underlying water rights.

Reuse in Utah

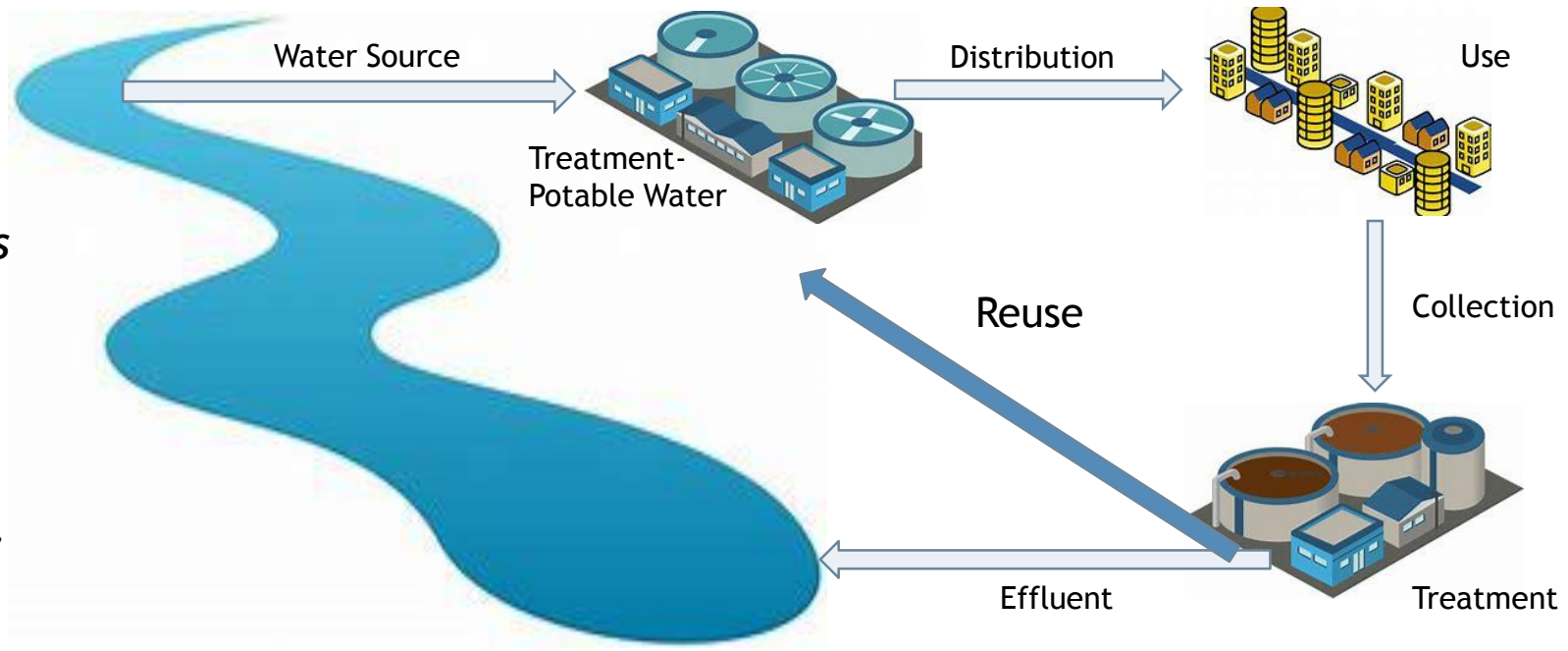
The 2006 Act defines a Reuse Authorization Contract as a contract between:

(1) the public agency proposing the project;
(2) the owner/operator of the POTW;
(3) the owner of the wastewater collection/transportation system;
(4) each legal title holder of the water rights to be reused;
(5) each water supplier (wholesaler and retailer) delivering the water to be reused;
(6) each water supplier (wholesaler and retailer) that will deliver the reuse water; and
(7) each retail water supplier whose water sales will be replaced by the reuse water.

Examples of Approvals Needed for Reuse

- US Bureau of Recl.
- Central Utah WCD
- Metro. WD of SL&S
- Sandy City
- *Sandy City Residents*
- Sewage Collection District
- South Valley WTP
- Jordan Valley WCD
- Draper Irrigation Co.

- State Engineer
- Utah Water Quality Board



Observations

- J. Craig Smith
  - Recent Reuse Project
  - Possible Solution - 2014 HB 371 (Water Reuse Amendments) Rep. Ken Ivory

- Nathan S. Bracken
  - Public Policy Observations
  - What other states have done

Reuse in Other States

A 2012 Survey by the Western States Water Council summarized the reuse laws of other western states as follows:

(1) **Arizona** streamlined its reuse laws in 2001 and reuse has increased steadily since then, reaching a statewide reuse level of 3% by 2012. Some states, like Arizona, have minimal to no requirements to consider the effects of reuse on downstream users.

(2) **California** has water reuse dating back to the late 1800s. Its laws and policies promote the reuse of water to the maximum extent possible. Reuse levels by 2012 reached approximately 724,000 acre-feet per year. California PROHIBITS the use of potable water for non-potable uses if reuse water is available.

Reuse in Other States

A 2012 Survey by the Western States Water Council summarized the reuse laws of other western states as follows:

(3) Colorado has two cities that have been operating reuse projects for over 50 years. Reuse regulation and management is at the local level rather than the state level. Funding for reuse projects is also at the local level.

(4) Idaho had 37 industrial and 86 municipal reuse project permitted and in place by 2012. In 2009, those reuse projects were producing over 26,000 acre-feet of reuse water.

Reuse in Other States

The 2012 Western States Reuse Survey continued:

(5) **Kansas** had over 140 communities with permitted reuse projects and numerous projects utilizing wastewater for ag irrigation purposes in western Kansas. Kansas takes a "low profile" approach to reuse regulation.

(6) **Montana** has an established reuse permitting process with extensive standards and a monitoring program. The water rights aspect of reuse also figure prominently into this permitting process.

(7) **Nebraska** is using reuse as an alternative water source for small towns that are being impacted by more stringent surface water quality standards. However, Nebraska does not have a state-sponsored program to encourage reuse.

(8) **Nevada** had over 80 reuse projects by 2012. It also has no "formal" reuse program, although there is some statutory state-policy language.

Reuse in Other States

The 2012 Western States Reuse Survey continued:

(9) New Mexico has many successful reuse projects, with the majority of larger and midsize cities operating reuse projects. The permitting trend is for more projects as well as expanded projects. Reuse is considered to be a "beneficial use" of water. Public and private permittees are monitored through the permitting process.

(10) **North Dakota** does not define water reuse, nor does it have statutes or regulations dedicated to reuse. However, it does have reuse projects in place due to the scarcity of water supplies. The state Department of Health informally regulates reuse where public health concerns have been raised.

(11) **Oklahoma** had 24 entities with reuse projects in place in 2008. Their data shows that they were reusing about 9,200 acre-feet per year at that time. Their regulatory framework neither inhibits nor encourages reuse.

Reuse in Other States

The 2012 Western States Reuse Survey continued:

(12) **Oregon** had 120 permitted reuse projects by 2009 and the state's regulatory policy formally encourages reuse. Oregon has a permitting process in place.

(13) **South Dakota** did not have laws or regulations concerning reuse in place in 2012. However, it reported a "handful" of municipal and industrial reuse projects across the state.

(14) **Texas** divides reuse projects into direct and indirect reuse projects. Each type is regulated. In 2012, Texas reported having 251 active municipal projects and 105 active industrial projects, with an unknown number of graywater projects. In 2010, they report 101,000 acre-feet of direct reuse and 76,000 acre-feet of indirect reuse.

Reuse in Other States

The 2012 Western States Reuse Survey continued:

(15) **Washington** passed its Reuse Act in 1992, officially encouraging reuse projects and establishing a permitting process. However, by 2012, only 24 project were permitted with another 12 anticipated by 2017.

(16) **Wyoming** had 9 domestic wastewater reuse projects in place in 2012 and many larger agricultural and mineral operation reuse projects. Wyoming law recognizes reuse as a beneficial use of water and it has a regulatory scheme in place to protect the health of the public.

Observations concerning reuse in Utah vs. other states?

Questions ?

David B. Hartvigsen
SMITH HARTVIGSEN, PLLC
801-413-1600
www.water.law
david@water.law

SMITH HARTVIGSEN